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Appl. No. (unassigned)
Nat'l Phase Entry of PCT/GB2003/004895
February 3, 2005

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the

application:

1. *(Original)* A method of calibrating bias drift with operating temperature over an

operating temperature range for a vibrating structure gyroscope having a substantially planar,

substantially ring shaped silicon vibrating structure, primary drive means for putting and

maintaining the vibrating structure in carrier mode resonance, and secondary drive means for

nulling response mode motion of the vibrating structure, which secondary drive means includes

means to separate a detected response mode motion signal into a real component induced by

applied rotation of the vibrating structure gyroscope and a quadrature component which is an

error term indicative of error mismatch between carrier mode resonance frequency and response

mode resonance frequency, including the steps of measuring, over an operating temperature

range of the vibrating structure gyroscope, primary drive means voltage P which is a measure of

change in quality factor LQ of the vibrating structure with temperature, vibrating structure

frequency f which is a measure of change of temperature of the vibrating structure, secondary

drive quadrature component values S_q which is a measure of real component bias errors with

temperature, and secondary drive real component values S_r which is a measure of change in bias,

that is the zero inertial rate offset, of the vibrating structure gyroscope with temperature,

substituting the values obtained in the relationship

$$S_r = \sum_k f^k \sum_l S_q^l \sum_m P^m a_{klm}$$

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where a_{klm} are bias calibration coefficients for the vibrating structure gyroscope over the

operating temperature range, and calculating from the relationship the coefficients a_{klm} to provide

a set of bias calibration coefficients for the vibrating structure gyroscope over the tested

operating temperature range.

2. *(Original)* A method according to claim 1, in which the coefficients a_{klm} are calculated

from the relationship by carrying out a multiple linear regression on the relationship.

3. *(Original)* A method according to claim 1, in which the coefficients a_{klm} are calculated

by Kalman filtering.

4. *(Cancelled)*